L3 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:1234004 CAPLUS
TITLE: Hydrogel glycan microarrays
AUTHOR(S): Dyukova, V. I.; Dementieva, E. I.; Zubtsov, D. A.; Galanina, O. E.; Bovin, N. V.; Rubina, A. Yu.
CORPORATE SOURCE: Engelhardt Institute of Molecular Biology, Russian Academy of Sciences, Moscow, 119991, Russia
SOURCE: Analytical Biochemistry (2005), 347(1), 94-105
CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The technol. of hydrogel microchips manufacturing, which was developed previously for covalent immobilization of DNA and proteins, was applied for the preparation of glycochips and combined glyco/protein chips. Microchips consist of hydrogel drops separated with hydrophobic surface. **Spacered** amino-**saccharides** and polyacrylamide glycoconjugates were used for immobilization. Gel elements were .apprx.1 nl in volume (150 μm in diameter and 25 μm in height), and the amount of covalently immobilized **saccharide** in the glycoarray was 0.4-1.7 pmol per gel element. Hydrogel glycan microchips were used for quant. assay of antibodies against **blood group** antigens and assay of lectins with fluorescent detection. In all cases, only specific interaction with chip-immobilized **saccharides** was observed, whereas the background signal was very low. The detection limit of on-chip assays was comparable to that of the standard 96-well plate assays. Mixing of reaction solution allowed us to decrease the duration of the assays significantly: 2-3 h for incubation and development steps and 10 min for washing. A method for determination of association consts. for binding of compds. with chip-immobilized ligands from the kinetics of their binding is proposed. Combined microchips containing different types of biomols. can be designed and used for simultaneous detection of different compds.

L3 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:277396 CAPLUS
DOCUMENT NUMBER: 143:262936
TITLE: The isolation and characterization of human natural αGal-specific IgG antibodies applicable to the detection of αGal-glycosphingolipids
AUTHOR(S): Smorodin, E. P.; Kurtenkov, O. A.; Shevchuk, I. N.; Tanner, R. H.
CORPORATE SOURCE: Department of Oncology & Immunology, National Institute for Health Development, Tallinn, 11619, Estonia
SOURCE: Journal of Immunoassay & Immunochemistry (2005), 26(2), 145-156
CODEN: JIIOAZ; ISSN: 1532-1819
PUBLISHER: Taylor & Francis, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The Galα1-3Galβ (αGal) hapten is xenogeneic for humans; natural anti-αGal antibodies are present in human serum. To study the possible abnormal expression of the αGal in humans and the pathophysiol. role of antibodies, the method of affinity purification of human anti-αGal IgG was developed. The specificity of antibodies was evaluated using polyacrylamide (PAA)-based glycoconjugates in direct and competitive enzyme-linked immunosorbent assays (ELISA). The purified antibodies exhibited αGal-restricted specificity. The IC50 value for αGal-PAA was equal to 4 + 10-8 M. In a competitive assay, the Galα1-3(Fucα1-2)Galβ-PAA (trisaccharide of **blood group** B) was found to be one hundred times less

active inhibitor than αGal-PAA. The multivalent αGal-PAA was 1100 times more potent an inhibitor than the monovalent **spacered** αGal- **saccharide**. The antibodies did not show any reactivity to the neg. charged antigens (DNA, human tumor-derived mucins). At a concentration of 2μg/mL, the antibodies agglutinated rabbit erythrocytes but not hare erythrocytes. The high reactivity of antibodies to the αGal-glycosphingolipids of rabbit erythrocytes and the pig kidney was shown by a modified sensitive method of thin-layer chromatog. with immunodetection.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:88302 CAPLUS
DOCUMENT NUMBER: 140:152061
TITLE: Biol. active saccharides bound to matrixes for blood separation
INVENTOR(S): Nilsson, Kurt
PATENT ASSIGNEE(S): Swed.
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6686457	B1	20040203	US 2000-722241	20001127
US 2004242857	A1	20041202	US 2003-743269	20031223
PRIORITY APPLN. INFO.:			US 1998-91486 A2	19980619
			SE 2000-430 A	20000208
			SE 2000-2462 A	20000628
			SE 2000-4343 A	20001124
			US 2000-722241 A2	20001127

AB The material contains at least one biol. active **saccharide** which is covalently bound via at least one **spacer** to a crosslinked matrix. In the production of the product, epoxy-activated Sepharose 4 Fast Flow is covalently bound to **blood group** A-O(CH2)nPhNHCO(CH2)mNH-, and **Blood group** B-O(CH2)nPhNHCO(CH2)mNH-, where n = 0-4, and m = 1-7. The products can be used, for example, for extra-corporal removal of **blood group** A- and **blood group** B-antibodies, resp., e.g. for treatment of blood, or for example, before a transplantation, for example over the **blood group** barrier. The product can be used in general for different types of transplantation as a part of the treatment of the recipient before and during, and eventually after the transplantation. This is able to circumvent the problem of **blood group** incompatibility between donor and recipient.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1985:519383 CAPLUS
DOCUMENT NUMBER: 103:119383
TITLE: Conjugates prepared by fixing a ligand on an insoluble support, and their biological use
INVENTOR(S): Faure, Alain; Ropars, Claude; Doinel, Christian; Lefrancier, Pierre; Maman, Michel; Level, Michel
PATENT ASSIGNEE(S): Choay S. A., Fr.; Centre National de Transfusion Sanguine
SOURCE: Fr. Demande, 26 pp.
CODEN: FRXXBL

DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2553518	A1	19850419	FR 1983-16302	19831013
FR 2553518	B1	19860418		
CA 1250523	A1	19890228	CA 1984-465219	19841011
JP 60100762	A2	19850604	JP 1984-214080	19841012
EP 141711	A2	19850515	EP 1984-402068	19841015
EP 141711	A3	19850626		

R: AT, BE, CH, DE, GB, IT, LI, LU, NL, SE

PRIORITY APPLN. INFO.: FR 1983-16302 A 19831013

AB The preparation is described of new conjugates which consist of an insol. polymeric support with a covalently attached (through a **spacer** arm) biol. active mol. or ligand containing a **saccharide** or glucosamino-glucuroglycan moiety (e.g., **blood group** antigenic determinants, heparin, cells or their membranes, especially erythrocyte stromata, or N-acetylglucosamine). The applications of the new conjugates as adsorbents for affinity and immunoaffinity chromatog. purifns. are also described. For example, a conjugate was prepared consisting of a vinyl-polyacrylamide support with a covalently attached antigenic determinant to **blood group** B. The preparation involved hydrazinolysis of a PVC-acrylamide support and coupling to solubilized trisaccharide, followed by washing with 0.2M borate buffer, pH 8.0. The prepared conjugate was 100% specific for antiserum to **blood-group** antigenic determinant B. Nonspecific absorption of antibody to **blood-group** antigenic determinant A was <3%. The immunoadsorbants are useful for **blood group** typing for transfusions. Examples are also given of the use of the conjugates for lectin purification (e.g., wheat germ agglutinin).

L3 ANSWER 5 OF 7 MEDLINE on STN
ACCESSION NUMBER: 2005611709 IN-PROCESS
DOCUMENT NUMBER: PubMed ID: 16236238
TITLE: Hydrogel glycan microarrays.
AUTHOR: Dyukova V I; Dementieva E I; Zubtsov D A; Galanina O E; Bovin N V; Rubina A Yu
CORPORATE SOURCE: Engelhardt Institute of Molecular Biology, Russian Academy of Sciences, 119991 Moscow, Russia.
SOURCE: Analytical biochemistry, (2005 Dec 1) 347 (1) 94-105. Electronic Publication: 2005-09-27. Journal code: 0370535. ISSN: 0003-2697.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: NONMEDLINE; IN-DATA-REVIEW; IN-PROCESS; NONINDEXED; Priority Journals
ENTRY DATE: Entered STN: 20051122 Last Updated on STN: 20051122

AB The technology of hydrogel microchips manufacturing, which was developed previously for covalent immobilization of DNA and proteins, was applied for the preparation of glycochips and combined glyco/protein chips. Microchips consist of hydrogel drops separated with hydrophobic surface. **Spacered** amino-**saccharides** and polyacrylamide glycoconjugates were used for immobilization. Gel elements were approximately 1nl in volume (150mum in diameter and 25mum in height), and the amount of covalently immobilized **saccharide** in the glycoarray was 0.4-1.7pmol per gel element. Hydrogel glycan microchips were used for quantitative assay of antibodies against **blood group** antigens and assay of lectins with fluorescent detection.

In all cases, only specific interaction with chip-immobilized **saccharides** was observed, whereas the background signal was very low. The detection limit of on-chip assays was comparable to that of the standard 96-well plate assays. Mixing of reaction solution allowed us to decrease the duration of the assays significantly: 2-3h for incubation and development steps and 10min for washing. A method for determination of association constants for binding of compounds with chip-immobilized ligands from the kinetics of their binding is proposed. Combined microchips containing different types of biomolecules can be designed and used for simultaneous detection of different compounds.

L3 ANSWER 6 OF 7 MEDLINE on STN
ACCESSION NUMBER: 2005161831 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15794123
TITLE: The isolation and characterization of human natural alphaGal-specific IgG antibodies applicable to the detection of alphaGal-glycosphingolipids.
AUTHOR: Smorodin E P; Kurtenkov O A; Shevchuk I N; Tanner R H
CORPORATE SOURCE: Department of Oncology & Immunology, National Institute for Health Development, Hiiu 42, 11619, Tallinn, Estonia.. evgeni.smorodin@tai.ee
SOURCE: Journal of immunoassay & immunochemistry, (2005) 26 (2) 145-56.
Journal code: 100963688. ISSN: 1532-1819.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200507
ENTRY DATE: Entered STN: 20050330
Last Updated on STN: 20050706
Entered Medline: 20050705

AB The Galalpha1-3Galbeta (alphaGal) hapten is xenogeneic for humans; natural anti-alphaGal antibodies are present in human serum. To study the possible abnormal expression of the alphaGal in humans and the pathophysiological role of antibodies, the method of affinity purification of human anti-alphaGal IgG was developed. The specificity of antibodies was evaluated using polyacrylamide (PAA)-based glycoconjugates in direct and competitive enzyme-linked immunosorbent assays (ELISA). The purified antibodies exhibited alphaGal-restricted specificity. The IC50 value for alphaGal-PAA was equal to 4 x 10(-8) M. In a competitive assay, the Galalpha1-3(Fucalpha1-2)Galbeta-PAA (trisaccharide of **blood group** B) was found to be one hundred times less active inhibitor than alphaGal-PAA. The multivalent alphaGal-PAA was 1100 times more potent an inhibitor than the monovalent **spacered** alphaGal-**saccharide**. The antibodies did not show any reactivity to the negatively charged antigens (DNA, human tumor-derived mucins). At a concentration of 2 microg/mL, the antibodies agglutinated rabbit erythrocytes but not hare erythrocytes. The high reactivity of antibodies to the alphaGal-glycosphingolipids of rabbit erythrocytes and the pig kidney was shown by a modified sensitive method of thin-layer chromatography with immunodetection.

L3 ANSWER 7 OF 7 MEDLINE on STN
ACCESSION NUMBER: 85051731 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6389168
TITLE: Plasmodium falciparum: carbohydrates as receptor sites of invasion.
AUTHOR: Hermentin P; Paulsen H; Kolar C; Enders B
SOURCE: Experimental parasitology, (1984 Dec) 58 (3) 290-306.
Journal code: 0370713. ISSN: 0014-4894.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198412
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19900320
Entered Medline: 19841231

AB Monosaccharides, disaccharides, and trisaccharides were tested as inhibitors of the in vitro growth of Plasmodium falciparum (strain FCB). While certain monosaccharides (N-acetyl-D-glucosamine, D-mannose, and 3-O-methyl-D-glucose) proved to exhibit a toxic or reversibly retarding effect on the intraerythrocytic development of the parasite, the corresponding alpha- or beta-methylglycosides did not. Several methylglycosides, synthetic di- and tri-**saccharides**, and artificial **blood group** antigens were further tested for inhibitory effects on invasion of host red blood cells in vitro. The synthetic disaccharides beta DGlcNAc(1----4) alpha DManOMe and beta DGlcNAc(1----4) DGlcNAc (chitobiose) were good inhibitors of invasion at 10 mM concentration, whereas beta DGal(1----4)beta DGlcNAcOMe was negligibly inhibitory. The inhibition rate of N-acetyl-D-glucosamine, beta-glycosidically linked to bovine serum albumin (BSA) by an alipathic **spacer**, -(CH2)8CO-, was not enhanced, compared to the corresponding hapten, beta DGlcNAcO(CH2)8COOCH3. The inhibition rates of **blood group** A- and B-trisaccharide haptens, which were inhibitors of invasion, were also not significantly enhanced when coupled to BSA by way of the corresponding amide **spacer**, -(CH2)2NHCO(CH2)7CO-. A remarkable enhancement of the inhibition rate was, however, observed when beta DGal(1----3) alpha DGalNAcO(CH2)2NHCO(CH2)7COOCH3 (T-hapten) was coupled to BSA. A clear-cut decrease in the inhibition rates of different beta-glycosides of N-acetyl-D-glucosamine, beta DGlcNAcOR, was observed, depending on the nature of the aglycon R(p-nitrophenyl greater than -(CH2)8COOCH3 greater than -(CH2)2NHCO(CH2)2COOCH3 greater than -CH3). Also, p-nitrophenyl-alpha-D-glucopyranoside was a much better inhibitor of invasion than the corresponding methyl glycoside, alpha DGlcOMe, which was not inhibitory. The properties of the aglycon **spacer**, used for the covalent attachment of the carbohydrate to the carrier protein, may thus be crucial for the outcome of the inhibition rate.

ANSWER 1 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:565191 CAPLUS
DOCUMENT NUMBER: 141:123856
TITLE: Method of purifying/concentrating sugar chain with sugar chain-trapping molecule and method of analyzing sugar chain structure
INVENTOR(S): Nishimura, Shinichiro; Niikura, Kenichi; Nakagawa, Hiroaki; Okayama, Minenobu
PATENT ASSIGNEE(S): Shionogi Co., Ltd., Japan
SOURCE: PCT Int. Appl., 153 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058687	A1	20040715	WO 2003-JP16841	20031225
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1577293	A1	20050921	EP 2003-782913	20031225
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				

PRIORITY APPLN. INFO.: JP 2002-378733 A 20021226
WO 2003-JP16841 W 20031225

OTHER SOURCE(S): MARPAT 141:123856

AB Provided is a UV-polymerizable substance comprising a sugar chain-trapping functional group-**spacer**-polymerizable functional group which contains a functional group such as hydroxylamino, N-alkyl hydroxylamino, hydrazino, semicarbazido, or cysteine group interacting with aldehyde group in a fluid and can specifically interact with sugar chains, wherein the degree of interaction between the sugar chains and the substance amts. to a dissociation energy of at least 5 eV required under irradiation with laser in **matrix**-assisted laser-desorption ionization time-of-flight (MALDI-TOF) mass spectrometry. The said substance is represented by general formula X-Y-Z [wherein R1NHO-X1-C(:X2)-N(R2)-, R1NHO-X1-N(R2)-C(:X2)-, H2NNHC(:X2)-N(R2)-, H2NNHC(:X2)-X1-C(:X3)-N(R2)-, H2NNHC(:X2)-X1-N(R2)-C(:X3)-, HS-X4-CH(NH2)-C(:X2)-N(R2)-, HS-X4-CH(NH2)-C(:X2)-N(R2)-X1-C(X3)-N(R3)-, HS-X4-CH(NH2)-C(:X2)-N(R2)-X1-N(R3)-C(X3)-; X1 = each (un)substituted alkylene or alkenylene; X2, X3 = O, S; X4 = CH2, CH2CH2; R1-R3 = H, alkyl; Y = a single bond, O, S, S-S, N(Ra)CO, CON(Rb), (un)substituted alkylene optionally interrupted by at least one group selected from (un)substituted phenylene, (un)substituted alkenylene optionally interrupted by at least one group selected from O, S, S-S, N(Ra), CO, CON(Rb), and (un)substituted phenylene; Z = -N(R4)-C(:Z1)-C.tplbond.CC.tplbond.C-Z3, -C(:Z1)-N(R4)-C.tplbond.CC.tplbond.C-Z3, -N(R4)-C(:Z1)-Z2-N(R5)-C(:Z4)-CH:CH2, -C(:Z1)-N(R4)-Z2-N(R5)-C(:Z4)-CH:CH2, -N(R4)-C(:Z1)-Z2-O-C(:Z3)-CH:CH2, -C(:Z1)-N(R4)-Z2-O-C(:Z3)-CH:CH2; Z1, Z4 = O, S; Z2, Z3 = each (un)substituted alkylene or alkenylene optionally interrupted by phenylene; R4, R5 = H, alkyl]. Also provided is a method of separating, concentrating, or purifying sugar chains or a sugar chain-containing substance each

contained in a sample, which comprises: (a) a step in which a sugar chain-trapping carrier having a substance which can specifically interact with sugar chains is contacted in a fluid phase with the sample under such conditions that the sugar chain-trapping carrier can react with the sugar chains or sugar chain-containing substance; (b) a step in which a composite of the sugar chain-trapping carrier with the sugar chains or sugar chain-containing substance is taken out of the fluid phase; and (c) a step in which the composite is exposed to conditions under which the interaction between the sugar chain-trapping carrier and the sugar chains or sugar chain-containing substance is eliminated at least partly. This method efficiently separates, purifies, and concs. glycoproteins derived from cells or biol. samples and complex glycolipids, removes impurities such as proteins or lipids, makes direct anal. such as mass spectrometry easy, and can transfer two dimensional images of sugar chains derived from pathol. specimens. Contacting the surface of pretreated biol. sample with sugar chain-trapping polymers described above in combination with in vivo enzyme enables the isolation of sugar chains derived from bores of duct cells such as milk vessel or bile duct belonging to gland tissues. Chain compns. isolated are useful for diagnosis of diseases or as drugs such as vaccine or health food and the residual proteins or lipids after removing glycoproteins or glycolipids are used as drugs reduced in antigenicity or low allergic foods. Thus, amidation of 10,12-pentacosadiynoic acid with N-(10,12-pentacosadiynoyl)-3,6-dioxaoctane-1,8-diamine using 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride in CHCl3 at 0° for 1 h and at room temperature for 8 h gave N-(10,12-pentacosadiynoyl)-3,6-dioxaoctane-1,8-diamine which was similarly amidated with [(N-tert-butoxycarbonylamino)oxy]acetic acid in CHCl3 containing 5% MeOH to give N-(10,12-pentacosadiynoyl)-N'-[[(N-tert-butoxycarbonylamino)oxy]acetyl]-3,6-dioxaoctane-1,8-diamine. Deprotection of the latter compound by treatment with CF3CO2H at 0° for 5 h gave N-(10,12-pentacosadiynoyl)-N'-[(aminooxy)acetyl]-3,6-dioxaoctane-1,8-diamine which was copolymd. with di(10,12-pentacosadiynoyl)phosphatidylcholine under irradiation with a UV lamp for 30 min to give N-(10,12-pentacosadiynoyl)-N'-[(aminooxy)acetyl]-3,6-dioxaoctane-1,8-diamine-di(10,12-pentacosadiynoyl)phosphatidylcholine copolymer as spherical sugar trapping polymer. Human Ig was dissolved in 0.01 N HCl, adjusted to pH 2 with 0.1N HCl, and heated at 90° for 60 min, neutralized with ammonium bicarbonate, freeze-dried, dissolved in 50 mM ammonium bicarbonate, treated with trypsin at 37° for 24 h, heated at 90° for 15 min, then treated with N-glycosidase at 37° for 24 h, and heated at 90° for 15 min to give a solution of human Ig-derived sugar chains in ammonium carbonate solution The sugar chain solution was mixed with a solution of the sugar chain-trapping polymer prepared above in 3 N acetate buffer (pH 5.6), treated with MeOH, and allowed to stand at 37° for 12 h and centrifuged to give a polymer concentrate which was treated with ultrapure water, centrifuged, and treated with ultrapure water to give a polymer concentrate The polymer concentrate was shaken with Amberlite IR-120 at 37° for 1 h and centrifuged. The filtrate was analyzed by MALDI-TOF mass spectrometer using 2,5-dihydroxybenzoic acid as the **matrix** agent. A total of 8 **oligosaccharides** was purified and separated be this method.

L5 ANSWER 2 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:478420 CAPLUS
DOCUMENT NUMBER: 139:174557
TITLE: Phosphacan Short Isoform, a Novel Non-proteoglycan Variant of Phosphacan/Receptor Protein Tyrosine Phosphatase-β, Interacts with Neuronal Receptors and Promotes Neurite Outgrowth
AUTHOR(S): Garwood, Jeremy; Heck, Nicolas; Reichardt, Frank; Faissner, Andreas

CORPORATE SOURCE: Laboratoire de Neurobuiologie du Developpement et de la Regeneration, Centre de Neurochimie, CNRS, Strasbourg, 67084, Fr.
SOURCE: Journal of Biological Chemistry (2003), 278(26), 24164-24173
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Phosphacan, one of the principal proteoglycans in the extracellular **matrix** of the central nervous system, is implicated in neuron-glia interactions associated with neuronal differentiation and myelination. We report here the identification of a novel truncated form of phosphacan, phosphacan short isoform (PSI), that corresponds to the N-terminal carbonic anhydrase- and fibronectin type III-like domains and half of the **spacer** region. The novel cDNA transcript was isolated by screening of a neonatal brain cDNA expression library using a polyclonal antibody raised against phosphacan. Expression of this transcript in vivo was confirmed by Northern blot hybridization. Anal. of brain protein exts. reveals the presence of a 90-kDa glycosylated protein in the phosphate-buffered saline-insol. 100,000 x g fraction that reacts with antisera against both phosphacan and a recombinant PSI protein and that has the predicted N-terminal sequence. This protein is post-translationally modified with **oligosaccharides**, including the HNK-1 epitope, but, unlike phosphacan, it is not a proteoglycan. The expression of the PSI protein varies during central nervous system development in a fashion similar to that observed for phosphacan, being first detected around embryonic day 16 and then showing a dramatic increase in expression to plateau around the second week post-natal. Both the native and recombinant PSI protein can interact with the Ig cell adhesion mols., F3/contactin and L1, and in neurite outgrowth assays, the PSI protein can promote outgrowth of cortical neurons when used as a coated substrate. Hence, the identification of this novel isoform of phosphacan/receptor protein tyrosine phosphatase-β provides a new component in cell-cell and cell-extracellular **matrix** signaling events in which these proteins have been implicated.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:614422 CAPLUS
TITLE: Design and synthesis of well defined oligomeric assemblies of hyaluronan
AUTHOR(S): Iyer, Suri S.; Rele, Shyam; Baskaran, Subramanium; Chaikof, Elliot
CORPORATE SOURCE: Department of Surgery, Emory University, Atlanta, GA, 30030, USA
SOURCE: Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), CARB-093. American Chemical Society: Washington, D. C.
CODEN: 69CZPZ
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

AB An efficient strategy has been designed for the preparation of **disaccharides** of hyaluronan (HA), a linear high mol. weight **polysaccharide** present in the extracellular **matrix** with alternating β 1,3 and 1,4 linkages between D-glucuronic acid and N-acetyl D-glucosamine units. Specifically, the structurally related region b-D-GlcA-(1,3)-α/β-D-GlcNHAc and its dimerized oligomers separated by a diakyldiamine **spacer** have been synthesized. Construction of the target mols. was achieved through a combination of

protection/deprotection protocols, trichloroacetimidate glycosylation methodol. followed by ozonolysis and reductive amination. The syntheses and potential therapeutic applications of these tailored synthetic mimics will be presented.

L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:597849 CAPLUS
DOCUMENT NUMBER: 135:185510
TITLE: Oligosaccharide supports for removal of antibodies from blood
INVENTOR(S): Nilsson, Kurt
PATENT ASSIGNEE(S): Glycorex Transplantation Ab, Swed.
SOURCE: PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001058510	A1	20010816	WO 2001-SE241	20010207
W: AE, AU, BR, CA, CN, CZ, IL, IN, JP, MX, PL, RU, SG, US, ZA				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
CA 2366469	AA	20010816	CA 2001-2366469	20010207
EP 1165159	A1	20020102	EP 2001-910272	20010207
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2004022784	A1	20040205	US 2003-958272	20030612
PRIORITY APPLN. INFO.:			SE 2000-430	A 20000208
			SE 2000-1833	A 20000516
			SE 2000-2462	A 20000628
			SE 2000-4343	A 20001124
			WO 2001-SE241	W 20010207

AB A material contains at least 1 biol. active **oligosaccharide** which is covalently bound via at least 1 **spacer** to a crosslinked **matrix** and the material is autoclaved. The **matrix** can be selected from a polymer or a **polysaccharide** attached to a **spacer** group. The material is useful for the removal of antibodies from blood.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:526586 CAPLUS
DOCUMENT NUMBER: 135:177582
TITLE: Synthesis of a macroporous hydrophilic ternary copolymer and its application in boronate-affinity separation
AUTHOR(S): Lei, Yinlin; Liu, Zuozhen; Liu, Qinfeng; Wu, Xingyan
CORPORATE SOURCE: State Key Laboratory of Bioreactor Engineering, East China University of Science and Technology, Shanghai, 200237, Peop. Rep. China
SOURCE: Reactive & Functional Polymers (2001), 48(1-3), 159-167
CODEN: RFPOF6; ISSN: 1381-5148
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new macroporous ternary copolymer was synthesized using vinyl acetate (VAC), glycidyl methacrylate (GMA) and allyl methacrylate (AMA) through suspension polymerization with a mixture of n-heptane and Bu acetate as the

porogenic agent. The effects of the crosslinking degree, the level of GMA and the porogenic agent mixture and composition on the pore structure of the copolymer and on the properties of the alcoholyzed copolymer were investigated. The properties of a typical adsorbent were pore diameter 18.9 nm, pore volume 0.38 mL/g, and sp. surface area 80.2 m2/g. A hydrophilic polyvinyl alc.-based **matrix** was obtained on alcoholysis of the copolymer with the epoxy group unaffected. The alcoholyzed copolymer was then attached to a **spacer**, 6-aminocaproic acid (6-ACA), and finally coupled to 3-aminophenylboronic acid (APBA) as a ligand. The addition reaction between the epoxy group of the **matrix** and the amino group of 6-ACA was also examined The ligand d. of the prepared affinity adsorbent was 0.865 mmol/g dry resin, which was applied to purify a **polysaccharide** peptide of Coriolus versicolor (PSP). The optimal conditions for the adsorption of PSP was 0.2 M ammonium acetate (pH 8.2) containing 0.2 M NaCl.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:826376 CAPLUS
DOCUMENT NUMBER: 134:322933
TITLE: Study on preparation of polyvinyl alcohol affinity adsorbent and its application for purifying glycoprotein. (II) Absorbent preparation
AUTHOR(S): Lei, Yinlin; Liu, Zuozhen; Liu, Qinfeng; Wu, Xingyan
CORPORATE SOURCE: State Key Lab of Bioreactor Engineering, Huazhen Company, East China University of Science and Technology, Shanghai, 200237, Peop. Rep. China
SOURCE: Lizi Jiaohuan Yu Xifu (2000), 16(5), 420-425
CODEN: LJYXE5; ISSN: 1001-5493
PUBLISHER: Lizi Jiaohuan Yu Xifu Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB An affinity adsorbent was prepared with the alcoholytic product of macroporous copolymer vinyl acetate-glycidyl methacrylate-allyl methacrylate as **matrix**, 6-aminocaproic acid as **spacer** and 3-aminophenylboric acid as ligand in the presence of EDAC catalyst. The conjugation rate of the preparation course was up to 89%. The application of the adsorbent in the purification of **polysaccharide**-peptide of Coriolus versicolor (PSP) was studied. The adsorption capacity of this adsorbent was 7.7 times higher than that of the blank **matrix**.

L5 ANSWER 7 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:700678 CAPLUS
DOCUMENT NUMBER: 134:21375
TITLE: Lectin-mediated drug targeting: selection of valency, sugar type (Gal/Lac), and spacer length for cluster glycosides as parameters to distinguish ligand binding to C-type asialoglycoprotein receptors and galectins
AUTHOR(S): Andre, Sabine; Frisch, Benoit; Kaltner, Herbert; Desouza, Debora Lima; Schuber, Francis; Gabius, Hans-J.
CORPORATE SOURCE: Institut fur Physiologische Chemie, Tierarztliche Fakultat, Ludwig-Maximilians-Universitat, Munchen, D-80539, Germany
SOURCE: Pharmaceutical Research (2000), 17(8), 985-990
CODEN: PHREEB; ISSN: 0724-8741
PUBLISHER: Kluwer Academic/Plenum Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Common **oligosaccharides** of cellular glycoconjugates are ligands for more than one type of endogenous lectin. Overlapping specificities to β-galactosides of C-type lectins and galectins can reduce target

selectivity of carbohydrate-ligand-dependent drug targeting. The purpose of this study is to explore distinct features of ligand presentation and structure for design of cluster glycosides to distinguish between asialoglycoprotein-specific (C-type) lectins and galectins. Extent of binding of labeled sugar receptors to two types of **matrix** -immobilized (neo)glycoproteins and to cells was evaluated in the absence and presence of competitive inhibitors. This panel comprised synthetic mono-, bi-, and trivalent glycosides with two **spacer** lengths and galactose or lactose as ligand part. In contrast to C-type lectins of hepatocytes and macrophages, bi- and trivalent glycosides do not yield a notable glycoside cluster effect for galectins-1 and -3. Also, these Ca2+-independent galactoside-binding proteins prefer to home in on lactose-bearing glycosides relative to galactose as ligand, while **spacer** length requirements were rather similar. Trivalent cluster glycosides with Gal/GalNAc as ligand markedly distinguish between C-type lectins and galectins. Undesired side reactivities to galectins for C-type lectin drug delivery will thus be minimal.

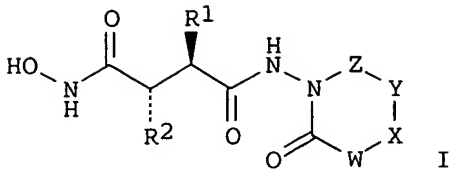
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN

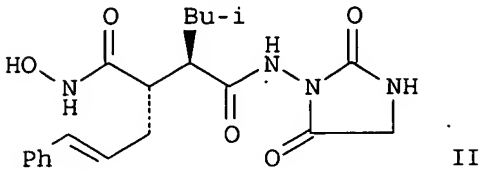
ACCESSION NUMBER: 2000:421113 CAPLUS
DOCUMENT NUMBER: 133:58802
TITLE: Preparation of hydroxycarbamoylalkylcarboxylic acid azacyclic hydrazides as TNF-α inhibitors
INVENTOR(S): Broadhurst, Michael John; Johnson, William Henry; Walter, Daryl Simon
PATENT ASSIGNEE(S): F. Hoffmann-La Roche Ag, Switz.
SOURCE: PCT Int. Appl., 128 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2000035885	A1	20000622	WO 1999-EP9423		19991202
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
CA 2353924	AA	20000622	CA 1999-2353924		19991202
BR 9916005	A	20010904	BR 1999-16005		19991202
EP 1137640	A1	20011004	EP 1999-965432		19991202
EP 1137640	B1	20050921			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
TR 200101644	T2	20011121	TR 2001-200101644		19991202
AU 765729	B2	20030925	AU 2000-20950		19991202
CN 1132819	B	20031231	CN 1999-814323		19991202
US 6281363	B1	20010828	US 1999-457798		19991209
ZA 2001004670	A	20020909	ZA 2001-4670		20010607
PRIORITY APPLN. INFO.:			GB 1998-27408	A	19981211
			GB 1999-25211	A	19991025
			WO 1999-EP9423	W	19991202

OTHER SOURCE(S): MARPAT 133:58802
GI



I



II

AB The title hydrazine derivs. (I) [wherein V = a **spacer** group; W = O, S, CO, NR5, (CR3R4)m, or forms a fused ring; X and Y = independently CO, NR5, (CH2)n, or forms a fused ring; Z = CO, CS, SO2, or CH2; R1 = (cyclo)alkyl, alkenyl, cycloalkylalkyl, or aryl(alkyl); R2 = (cyclo)alkyl, alkenyl, cycloalkylalkyl, V-aryl, V-heterocyclyl or (CH2)q-CH=CR8R9; R3, R4, and R5 = independently H, (un)substituted, (cyclo)alkyl, alkenyl, cycloalkylalkyl, aryl(alkyl), hetercyclyl(alkyl), or form a fused ring; R8 and R9 together = alkylene in which a CH2 is optionally replaced by a heteroatom; m = 0 or 1; n = 0-2; q = 1 or 2] and their pharmaceutically acceptable salts were prepared For example, II was formed in a 9-step sequence involving (1-3) preparation of (E)-2(R)-[1(S)-(tert-butoxycarbonyl)-4-phenyl-3-butenyl]-4-methylvalerohydrazide, (4) addition of N-(9-fluorenylmethyloxycarbonyl)glycine, (5) N-deprotection, (6) cycloaddn. with phosgene, (7) deesterification, (8) addition of O-(tetrahydro-2H-pyran-2-yl)hydroxylamine, and (9) O-deprotection. Eighteen invention compds. tested for inhibition of bacterial **lipopolysaccharide**-induced release of tumor necrosis factor alpha (TNF-α) in THP1 cells displayed IC50 of 147-620 nM. In contrast to structurally related hydroxamic acid derivs., I showed only weak inhibitory activity against the **matrix** metalloproteinase (MMP) family of enzymes, such as collagenases, stromelysins, and gelatinases (no data). I are useful as medicaments, especially in the treatment of inflammatory and autoimmune diseases, osteoarthritis, respiratory diseases, tumors, cachexia, cardiovascular diseases, fever, hemorrhage and sepsis.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:383102 CAPLUS

DOCUMENT NUMBER: 129:132724

TITLE: ADAMTS-1 protein anchors at the extracellular matrix through the thrombospondin type I motifs and its spacing region

AUTHOR(S): Kuno, Kouji; Matsushima, Kouji

CORPORATE SOURCE: Department of Pharmacology, Cancer Research Institute, Kanazawa University, Ishikawa, 920, Japan

SOURCE: Journal of Biological Chemistry (1998), 273(22), 13912-13917
CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cellular disintegrin and metalloproteinases (ADAMs) are a family of genes

with a sequence similar to those of snake venom metalloproteinases and disintegrins. The ADAMTS-1 gene encodes a new type of ADAM protein with respect to possessing the thrombospondin (TSP) type I motifs. Expression of the gene is induced in kidney and heart by in vivo administration of **lipopolysaccharide**, suggesting a possible role in the inflammatory reaction. In this study, we characterized the ADAMTS-1 gene product by using a transient expression system in COS-7 cells. We found that the precursor and processed forms of ADAMTS-1 were secreted from cells. Under normal growth conditions, little or none of both forms was detected in the cell culture medium, and instead the majority was found associated with the extracellular **matrix** (ECM). In addition, when cells were cultured in the presence of heparin, the mature form of ADAMTS-1 protein was detected in the cell culture medium, suggesting that binding of ADAMTS-1 to the ECM is mediated through sulfated glycosaminoglycans such as heparan sulfate. Analyses of deletion mutants of the ADAMTS-1 protein revealed that the **spacer** region as well as three TSP type I motifs in the carboxyl-terminal region of the ADAMTS-1 protein are important for a tight interaction with the ECM. These results suggest that the ADAMTS-1 is a unique ADAM family protein that anchors at the ECM.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:421459 CAPLUS
DOCUMENT NUMBER: 125:123453
TITLE: Polysaccharides as carriers for magnetic resonance imaging contrast agents: synthesis and stability of a new amino acid linker derivative
AUTHOR(S): Rongved, Paal; Fritzell, Tone Hauk; Strande, Per; Klaveness, Jo
CORPORATE SOURCE: Nycomed Imaging AS, Oslo, N-0401, Norway
SOURCE: Carbohydrate Research (1996), 287(1), 77-89
CODEN: CRBRAT; ISSN: 0008-6215
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The relative hydrolytic stability of contrast agents for MRI, consisting of paramagnetic metal chelates bound to **polysaccharides** through an ester bond, has been investigated. Four prepns. of biodegradable, crosslinked starch particles were studied as model compds.: DTPA-starch particles (I), two batches of gadolinium-DTPA (GdDTPA)-starch particles (II, III) with different Gd content, and N-(2-phenylethyl)succinamoyl starch ester particles (IV). In a study of hydrolytic rates in water suspension, the derivs. with GdDTPA bound directly to the particle via the carboxylic acid groups in DTPA (II, III) showed 74 and 86% remaining **matrix**-bound GdDTPA, resp., after 21 days. The unchelated derivative (I) showed 96% remaining **matrix**-bound DTPA, while for the succinamoyl-linked derivative (IV), no significant hydrolysis took place during the same time span. To investigate the corresponding stability of ester bonds in water-soluble, blood-pool agents for MRI, the degradation rate of the macromol. derivs. dextran-DTPAGd (V) and dextran-β-alanine-DTPAGd (VI) were compared in artificial blood plasma. The remaining fraction of undegraded ester bond in VI was approx. 95% after 100 min, while V was approx. fully degraded over the same time span. These results indicate that the conjugate with the β-alanine **spacer** may have a more suitable degradation rate for blood-pool MRI contrast purposes than the derivs. with GdDTPA directly ester bound. It was also shown by relaxation measurements that gadolinium-EDTA (GdEDTA) was demetalated in a test solution of phosphate (3 mM) at 37°C. No demetalation was observed for GdDTPA derivs. of water-soluble **polysaccharides**, represented by the dextran-GdDTPA conjugate V and aminoethyldextran-GdDTPA, lacking an ester bond between GdDTPA and the dextran **matrix**.

L5 ANSWER 11 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:996900 CAPLUS
DOCUMENT NUMBER: 124:24884
TITLE: Dehydrogenase and/or reductase coimmobilized in polymeric matrix with cofactor-polymeric spacer conjugate
INVENTOR(S): Ruedel, Ulrich; Gruendig, Bernd
PATENT ASSIGNEE(S): Institut fuer Chemo- und Biosensorik, Germany
SOURCE: Ger., 6 pp.
CODEN: GWXXAW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4419024	C1	19951019	DE 1994-4419024	19940531
PRIORITY APPLN. INFO.:			DE 1994-4419024	19940531

AB A dehydrogenase and/or a reductase is coimmobilized in a polymeric **matrix** with its cofactor(s). The cofactor is attached to a polymeric **spacer** such as PEG, a polypeptide, or a **polysaccharide**. Relative to prior art methods, the described method provides improved enzymic stability and activity. The method finds use in preparation of enzyme electrodes and sensors. Thus, an aqueous solution of Moldola blue, PEG-NAD(H) conjugate, and alc. dehydrogenase was degassed with N. Pyrrole was added to the solution then Pt and Ag/AgCl electrodes were inserted into the solution Upon application of 700 mV for 1 min, a polymer layer was deposited on the Pt electrode. This was used as an enzyme electrode for detection of EtOH.

L5 ANSWER 12 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:164437 CAPLUS
DOCUMENT NUMBER: 118:164437
TITLE: Covalent binding of urease on ammonium-selective potentiometric membranes
AUTHOR(S): Gil, M. H.; Piedade, A. P.; Alegret, S.; Alonso, J.; Martinez-Fabregas, E.; Orellana, A.
CORPORATE SOURCE: Dep. Chem., Univ. Coimbra, Coimbra, P-3049, Port.
SOURCE: Biosensors & Bioelectronics (1992), 7(9), 645-52
CODEN: BBIOE4; ISSN: 0956-5663
DOCUMENT TYPE: Journal
LANGUAGE: English

AB As part of the development of disposable urea bioselective probes, the covalent binding of urease on ammonium-selective potentiometric membranes has been assessed. Nonactin/bis(1-butylpentyl)adipate/poly(vinylchloride) (PVC) membranes, directly applied to an internal solid contact (conductive epoxy-graphite composite), has been used as a support for covalent immobilization of urease. Two types of all-solid-state construction process have been assayed: thin layers of cellulose acetate (CA) were coated on the PVC ammonium-selective membranes (type 1) and blends of PVC and CA at various ratios were used as ammonium-selective membrane **matrixes** (type 2). Urease was covalently attached to CA via aldehyde groups. These groups were created on the **polysaccharide** with sodium periodate to which the enzyme was immobilized through a **spacer** (hexamethylenediamine). The viability of both types of probe for the determination of ammonium ions was assessed after each step of the activation process. Results indicated that type 2 potentiometric probes are altered after the treatment with sodium periodate. Good results were obtained with type 1 probes. Their dynamic concentration range of response to

urea was from 2 + 10-5 to 0.01M with a sensibility of 50 mV/decade.

L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1991:675262 CAPLUS
DOCUMENT NUMBER: 115:275262
TITLE: Spatially addressable immobilization of antiligands on surfaces
INVENTOR(S): Barrett, Ronald W.; Pirrung, Michael; Stryer, Lubert; Holmes, Christopher P.; Sundberg, Steven A.
PATENT ASSIGNEE(S): Affymax Technologies N. V., Neth.
SOURCE: PCT Int. Appl., 73 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 20
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9107087	A1	19910530	WO 1990-US6607	19901113
W: AT, AU, BB, BG, BR, CA, CH, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MC, MG, MW, NL, NO, RO				
RW: AT, BE, BJ, CF, CG, CH, CM, DE, DK, ES, FR, GA, GB, GR, IT, LU, ML, MR, NL, SE, SN, TD, TG				
AU 9168867	A1	19910613	AU 1991-68867	19901113
EP 502060	A1	19920909	EP 1990-917525	19901113
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 05501611	T2	19930325	JP 1991-500563	19901113
US 5252743	A	19931012	US 1990-612671	19901113
US 5451683	A	19950919	US 1993-53124	19930423
US 5482867	A	19960109	US 1993-54121	19930423
US 2003008302	A1	20030109	US 2002-77070	20020214
US 2004029115	A9	20040212		

PRIORITY APPLN. INFO.:
US 1989-435316 A 19891113
US 1990-612671 A3 19901113
WO 1990-US6607 A 19901113
US 1997-829893 A1 19970402

OTHER SOURCE(S): MARPAT 115:275262

AB Methods and compns. are described for immobilizing anti-ligands, e.g. antibodies or antigens, hormones or hormone receptors, oligonucleotides, and **polysaccharides** on surfaces of solid substrates for various uses. The methods provide surfaces covered with caged (i.e. protected) binding members which contain protecting groups capable of being removed upon application of a suitable energy source. Spatially addressed irradiation of predefined regions on the surface permits immobilization of anti-ligands at the activated regions on the surface. Cycles of irradiation on different regions of the surface and immobilization of different anti-ligands allows formation of an immobilized **matrix** of anti-ligands at defined sites on the surface. The immobilized **matrix** of anti-ligands permits simultaneous screenings of a liquid sample for ligands having high affinities for certain anti-ligands of the **matrix**. A preferred embodiment of the invention involves attaching photoactivatable biotin derivs. to a surface. Photolytic activation of the biotin derivs. forms biotin analogs having strong binding affinity for avidin. Biotinylated anti-ligands can be immobilized on activated regions of the surface previously treated with avidin. Thus, a nitroveratryloxycarbonyl (NVOC) derivative of biotin was prepared, derivatized to an active ester, and the active ester reacted with a glass microscope slide which had been derivatized with N-Boc-aminopropyltriethoxysilane (Boc = tert-butoxycarbonyl) and then with an activated ester of N-Boc-6-aminocaproic acid. The microscope slide having the NVOC-biotin covalently attached by a caproic-Pr **spacer** was illuminated with

broad band UV/blue light through a checkerboard pattern mask. Following photolysis, the surface was rinsed and preincubated in a solution containing phosphate-buffered saline, bovine serum albumin, and Tween 20. The surface was then sequentially treated with streptavidin and a fluorescein-biotin derivative The resulting slide was washed, dried, and examined with a scanning fluorescence microscope (image included). The light squares indicated regions of high fluorescence intensity resulting from localization of the fluorescein label attached to biotin, thereby demonstrating the binding of a ligand (fluorescein-biotin) to streptavidin immobilized in a spatially addressable manner. The spatially addressable immobilization of 2 different antibodies on the same surface is also described.

L5 ANSWER 14 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1991:533977 CAPLUS
DOCUMENT NUMBER: 115:133977
TITLE: Covalent immobilization of a hapten on a solid matrix
INVENTOR(S): Mang, Thomas; Maier, Josef
PATENT ASSIGNEE(S): Boehringer Mannheim G.m.b.H., Germany
SOURCE: Ger. Offen., 9 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3841566	A1	19900613	DE 1988-3841566	19881209
EP 372581	A2	19900613	EP 1989-122710	19891208
EP 372581	A3	19910703		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 02211241	A2	19900822	JP 1989-319066	19891211
PRIORITY APPLN. INFO.:			DE 1988-3841566 A	19881209

AB A hapten bearing ≥1 functional group is attached covalently (without a **spacer**) to a solid **matrix** (e.g. a water-insol. **polysaccharide**) for use in immunoassays, affinity chromatog., etc. Either of the 2 components is previously activated for the reaction. Thus, cellulose was activated with tosyl chloride and coupled to T3.

L1 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:146298 CAPLUS
TITLE: Oligosaccharide mimics containing galactose and fucose specifically label tumour cell surfaces and inhibit cell adhesion to fibronectin
AUTHOR(S): Kim, Evelyn Y.-L.; Gronewold, Claas; Chatterjee, Amitava; Von der Lieth, Claus-Wilhelm; Kliem, Christian; Schmauser, Birgit; Wiessler, Manfred; Frei, Eva
CORPORATE SOURCE: Molecular Toxicology, Deutsches Krebsforschungszentrum, Heidelberg, 69120, Germany
SOURCE: ChemBioChem (2005), 6(2), 422-431
CODEN: CBCHFX; ISSN: 1439-4227
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB With the aim of establishing a versatile and easy synthesis of branched **saccharides** for biol. applications, we used mol.-dynamics simulations to model Lewisy to two classes of dior triantennary **saccharide** mimetics. One set of mimetics was based on 1,3,5-tris(hydroxymethyl)cyclohexane (TMC) as the core, the other on furan, and both were derivatized with galactose and/or fucose. The TMC-based **saccharides** were biotinylated, while the furan disaccharides were treated with maleimide-activated biotin in a Diels-Alder fashion to yield oxazatricyclodecanes (OTDs). These were then assayed as cell-surface labels in human colon (SW480 and CaCo-2), liver (PLC), Glia (U333 CG 343) and ovary (SKOV-3) tumor cell lines. Discrete staining patterns were observed in all cells, usually at one or two poles of the cells, particularly with the asym. 3-β-L-fucopyranosyloxymethyl-4-β-D-galactopyranosyloxymethyl-OTD. Normal SV40-transformed fibroblasts (SV80) showed no staining. Adhesion of the highly metastatic mouse melanoma line B16F10 to fibronectin was inhibited by 80% by the TMC-digalactoside and by 30% by 3,4-bis-(β-D-galactopyranosyloxymethyl)furan. None of the **saccharide** mimetics inhibited the adhesion of the less metastatic B16F1 line. Migration of B16F10 cells through **Matrigel** was greatly inhibited by the TMC-digalactoside and weakly inhibited by the TMC-trigalactoside. The **saccharide** mimetics that had shown the best structural agreements with the terminal **saccharides** of Lewisy in the mol. dynamics simulation were also the most biol. potent compds.; this underlines the predictive nature of mol. dynamics simulations. The use of the non-**saccharide** cores enabled us to adapt **spacer** lengths and terminal **saccharides** to optimize the structures to bind more avidly to cell-surface lectins.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:650087 CAPLUS
DOCUMENT NUMBER: 141:170455
TITLE: Polymer carriers with bonded saccharides for immobilization of biological systems
INVENTOR(S): Labsk, Jiri
PATENT ASSIGNEE(S): Ustav Makromolekularni Chemie Akademie Vedceske Republiky, Czech Rep.
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004067732	A2	20040812	WO 2004-CZ5	20040126
WO 2004067732	A3	20041118		

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI

CZ 295117	B6	20050518	CZ 2003-251		20030127
PRIORITY APPLN. INFO.:			CZ 2003-251	A	20030127

AB The solution concerns polymer carriers with bonded **saccharides** for immobilization of biol. systems, where at the nonreducing end of a disaccharide is mannose or galactose that are covalently bonded to polymer **matrix** through various types of **spacers**, which enables a better contact of a **saccharide** mol. with receptors of biol. systems.

L1 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:88302 CAPLUS
DOCUMENT NUMBER: 140:152061
TITLE: Biol. active saccharides bound to matrixes for blood separation
INVENTOR(S): Nilsson, Kurt
PATENT ASSIGNEE(S): Swed.
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 6686457	B1	20040203	US 2000-722241		20001127
US 2004242857	A1	20041202	US 2003-743269		20031223
PRIORITY APPLN. INFO.:			US 1998-91486	A2	19980619
			SE 2000-430	A	20000208
			SE 2000-2462	A	20000628
			SE 2000-4343	A	20001124
			US 2000-722241	A2	20001127

AB The material contains at least one biol. active **saccharide** which is covalently bound via at least one **spacer** to a crosslinked **matrix**. In the production of the product, epoxy-activated Sepharose 4 Fast Flow is covalently bound to blood group.A-O(CH2)nPhNHCO(CH2)mNH-, and Blood group B-O(CH2)nPhNHCO(CH2)mNH-, where n = 0-4, and m = 1-7. The products can be used, for example, for extra-corporal removal of blood group A- and blood group B-antibodies, resp., e.g. for treatment of blood, or for example, before a transplantation, for example over the blood group barrier. The product can be used in general for different types of transplantation as a part of the treatment of the recipient before and during, and eventually after the transplantation. This is able to circumvent the problem of blood group incompatibility between donor and recipient.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:233760 CAPLUS
DOCUMENT NUMBER: 128:308678
TITLE: Biotinyl-L-3-(2-naphthyl)-alanine hydrazide

derivatives of N-glycans: versatile solid-phase probes for carbohydrate-recognition studies
AUTHOR(S): Leteux, Christine; Childs, Robert A.; Chai, Wengang; Stoll, Mark S.; Kogelberg, Heide; Feizi, Ten
CORPORATE SOURCE: Glycobiology Group, The Glycosciences Laboratory, Imperial College School of Medicine, Northwick Park Hospital, Middlesex, HA1 3UJ, UK
SOURCE: Glycobiology (1998), 8(3), 227-236
CODEN: GLYCE3; ISSN: 0959-6658
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Biotinyl-oligosaccharides are a relatively new generation of **saccharide** probes that enable immobilization of desired oligosaccharides on streptavidin **matrixes** for studies of carbohydrate-protein interactions. Here we describe the facile preparation of biotinyl-L-3-(2-naphthyl)-alanine hydrazide (BNAH) derivs. of oligosaccharides, containing a strong UV absorbing and fluorescent group, in which the ring of the reducing-end monosaccharide is non-reduced. We evaluate reactivities of immobilized BNAH-N-glycans with plant lectins that recognize aspects of the oligosaccharide core or outer-arms. We make some comparisons with 2-amino-6-amidobiotinyl-pyridine (BAP) derivs. obtained by reductive amination, and 6-(biotinyl)-aminocaproyl-hydrazide (BACH) derivs. which have a longer **spacer**-arm. N-Glycan-BNAH and-BAP derivs. have, overall, comparable reactivities with lectins which recognize N-glycan outer-arms or the trimannosyl core, but only BNAH and BACH derivs. are bound by lectins which recognize the non-reduced core. Moreover, with Pisum sativum agglutinin (PSA) which addnl. requires the fucosyl-N-glycan-asparaginyl core for high affinity binding, the immobilized BNAH derivative (which is an alanine hydrazide β-glycoside) can substitute for the natural β-glycosylasparaginyl core, whereas the BACH derivative (aminocaproyl-hydrazide-β-glycoside) is less effective. BNAH is a derivatization reagent of choice, therefore, for solid phase carbohydrate-binding expts. with immobilized N-glycans.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:81221 CAPLUS
DOCUMENT NUMBER: 126:154913
TITLE: Differential targeting of closely related ECM glycoproteins: the pherophorin family from Volvox
AUTHOR(S): Godl, Klaus; Hallmann, Armin; Wenzl, Stephan; Sumper, Manfred
CORPORATE SOURCE: Lehrstuhl Biochemie I, Univ. Regensburg, Regensburg, D-93053, Germany
SOURCE: EMBO Journal (1997), 16(1), 25-34
CODEN: EMJODG; ISSN: 0261-4189
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The alga Volvox carteri represents one of the simplest multicellular organisms. Its extracellular **matrix** (ECM) is modified under developmental control, e.g. under the influence of the sex-inducing pheromone that triggers development of males and females at a concentration below 10-16 M. A novel ECM glycoprotein (pherophorin-S) synthesized in response to this pheromone was identified and characterized. Although being a typical member of the pherophorins, which are identified by a C-terminal domain with sequence homol. to the sex-inducing pheromone, pherophorin-S exhibits a completely novel set of properties. In contrast to the other members of the family, which are found as part of the insol. ECM structures of the cellular zone, pherophorin-S is targeted to the

cell-free interior of the spherical organism and remains in a soluble state. A main structural difference is the presence of a polyhydroxyproline **spacer** in pherophorin-S that is linked to a **saccharide** containing a phosphodiester bridge between two arabinose residues. Sequence comparisons indicate that the self-assembling proteins that create the main parts of the complex Volvox ECM have evolved from a common ancestral gene.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 6 OF 8 MEDLINE on STN

ACCESSION NUMBER: 2005108819 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15651048
TITLE: Oligosaccharide mimics containing galactose and fucose specifically label tumour cell surfaces and inhibit cell adhesion to fibronectin.
AUTHOR: Kim Evelyn Y-L; Gronewold Claas; Chatterjee Amitava; von der Lieth Claus-Wilhelm; Kliem Christian; Schmauser Birgit; Wiessler Manfred; Frei Eva
CORPORATE SOURCE: Molecular Toxicology, Deutsches Krebsforschungszentrum, Im Neuenheimer Feld 280, 69120 Heidelberg, Germany.
SOURCE: Chembiochem : a European journal of chemical biology, (2005 Feb) 6 (2) 422-31.
Journal code: 100937360. ISSN: 1439-4227.
PUB. COUNTRY: Germany: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200509
ENTRY DATE: Entered STN: 20050303
Last Updated on STN: 20050916
Entered Medline: 20050915

AB With the aim of establishing a versatile and easy synthesis of branched **saccharides** for biological applications, we used molecular-dynamics simulations to model Lewis(y) to two classes of di- or triantennary **saccharide** mimetics. One set of mimetics was based on 1,3,5-tris(hydroxymethyl)cyclohexane (TMC) as the core, the other on furan, and both were derivatised with galactose and/or fucose. The TMC-based **saccharides** were biotinylated, while the furan disaccharides were treated with maleimide-activated biotin in a Diels-Alder fashion to yield oxazatricyclodecanes (OTDs). These were then assayed as cell-surface labels in human colon (SW480 and CaCo-2), liver (PLC), Glia (U333 CG 343) and ovary (SKOV-3) tumour cell lines. Discrete staining patterns were observed in all cells, usually at one or two poles of the cells, particularly with the asymmetric 3-beta-L-fucopyranosyloxymethyl-4-beta-D-galactopyranosyloxymethyl-OTD. Normal SV40-transformed fibroblasts (SV80) showed no staining. Adhesion of the highly metastatic mouse melanoma line B16 F10 to fibronectin was inhibited by 80 % by the TMC-digalactoside and by 30 % by 3,4-bis-(beta-D-galactopyranosyloxymethyl)furan. None of the **saccharide** mimetics inhibited the adhesion of the less metastatic B16 F1 line. Migration of B16 F10 cells through **Matrigel** was greatly inhibited by the TMC-digalactoside and weakly inhibited by the TMC-trigalactoside. The **saccharide** mimetics that had shown the best structural agreements with the terminal **saccharides** of Lewis(y) in the molecular dynamics simulation were also the most biologically potent compounds; this underlines the predictive nature of molecular dynamics simulations. The use of the non-**saccharide** cores enabled us to adapt **spacer** lengths and terminal **saccharides** to optimise the structures to bind more avidly to cell-surface lectins.

L1 ANSWER 7 OF 8 MEDLINE on STN

ACCESSION NUMBER: 1998119783 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9451032
TITLE: Biotinyl-l-3-(2-naphthyl)-alanine hydrazide derivatives of N-glycans: versatile solid-phase probes for carbohydrate-recognition studies.
AUTHOR: Leteux C; Childs R A; Chai W; Stoll M S; Kogelberg H; Feizi T
CORPORATE SOURCE: The Glycosciences Laboratory, Imperial College School of Medicine, Harrow, Middlesex, United Kingdom.
SOURCE: Glycobiology, (1998 Mar) 8 (3) 227-36.
Journal code: 9104124. ISSN: 0959-6658.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199805
ENTRY DATE: Entered STN: 19980520
Last Updated on STN: 20021218
Entered Medline: 19980514

AB Biotinyl-oligosaccharides are a relatively new generation of **saccharide** probes that enable immobilization of desired oligosaccharides on streptavidin **matrices** for studies of carbohydrate-protein interactions. Here we describe the facile preparation of biotinyl-l-3-(2-naphthyl)-alanine hydrazide (BNAH) derivatives of oligosaccharides, containing a strong UV absorbing and fluorescent group, in which the ring of the reducing-end monosaccharide is nonreduced. We evaluate reactivities of immobilized BNAH- N -glycans with plant lectins that recognize aspects of the oligosaccharide core or outer-arms. We make some comparisons with 2-amino-6-amidobiotinyl-pyridine (BAP) derivatives obtained by reductive amination, and 6-(biotinyl)-aminocaproyl-hydrazide (BACH) derivatives which have a longer **spacer**-arm. N -Glycan-BNAH and-BAP derivatives have, overall, comparable reactivities with lectins which recognize N -glycan outer-arms or the trimannosyl core, but only BNAH and BACH derivatives are bound by lectins which recognize the non-reduced core. Moreover, with Pisum sativum agglutinin (PSA) which additionally requires the fucosyl- N-glycan-asparaginyl core for high affinity binding, the immobilized BNAH derivative (which is an alanine hydrazide beta-glycoside) can substitute for the natural beta-glycosylasparaginyl core, whereas the BACH derivative (aminocaproyl-hydrazide-beta-glycoside) is less effective. BNAH is a derivatization reagent of choice, therefore, for solid phase carbohydrate-binding experiments with immobilized N -glycans.

L1 ANSWER 8 OF 8 MEDLINE on STN
ACCESSION NUMBER: 97162277 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9009264
TITLE: Differential targeting of closely related ECM glycoproteins: the pherophorin family from Volvox.
AUTHOR: Godl K; Hallmann A; Wenzl S; Sumper M
CORPORATE SOURCE: Lehrstuhl Biochemie I, Universitat Regensburg, Germany.
SOURCE: EMBO journal, (1997 Jan 2) 16 (1) 25-34.
Journal code: 8208664. ISSN: 0261-4189.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-Y07752
ENTRY MONTH: 199702
ENTRY DATE: Entered STN: 19970227
Last Updated on STN: 19970227
Entered Medline: 19970213

AB The alga Volvox carteri represents one of the simplest multicellular organisms. Its extracellular **matrix** (ECM) is modified under

developmental control, e.g. under the influence of the sex-inducing pheromone that triggers development of males and females at a concentration below 10(-16) M. A novel ECM glycoprotein (pherophorin-S) synthesized in response to this pheromone was identified and characterized. Although being a typical member of the pherophorins, which are identified by a C-terminal domain with sequence homology to the sex-inducing pheromone, pherophorin-S exhibits a completely novel set of properties. In contrast to the other members of the family, which are found as part of the insoluble ECM structures of the cellular zone, pherophorin-S is targeted to the cell-free interior of the spherical organism and remains in a soluble state. A main structural difference is the presence of a polyhydroxyproline **spacer** in pherophorin-S that is linked to a **saccharide** containing a phosphodiester bridge between two arabinose residues. Sequence comparisons indicate that the self-assembling proteins that create the main parts of the complex Volvox ECM have evolved from a common ancestral gene.

L5 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1990:495947 CAPLUS
DOCUMENT NUMBER: 113:95947
TITLE: Comparison of the carbohydrate-binding specificities of seven N-acetyl-D-galactosamine-recognizing lectins
AUTHOR(S): Piller, Veronique; Piller, Friedrich; Cartron, Jean Pierre
CORPORATE SOURCE: Inst. Natl. Transfus. Sanguine, Paris, F-75739, Fr.
SOURCE: European Journal of Biochemistry (1990), 191(2), 461-6
CODEN: EJBCAI; ISSN: 0014-2956
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Seven plant lectins, Dolichos biflorus agglutinin (DBA), Griffonia simplicifolia agglutinin (GSA, isolectin A4), Helix pomatia agglutinin (HPA), soybean (Glycine max) agglutinin (SBA), Salvia sclarea agglutinin (SSA), Vicia villosa agglutinin (VVA, isolectin B4) and Wistaria floribunda agglutinin (WFA), known to be specific for N-acetyl-D-galactosamine-(GalNAc) bearing glycoconjugates, have been compared by the binding of their radiolabeled derivs., to eight well-characterized synthetic **oligosaccharides** immobilized via a **spacer** on an inert silica **matrix** (Synsorb). The eight **oligosaccharides** included the Forssman, the blood group A and the T antigens, as well as αGalNAc coupled directly to the support (Tn antigen) and also structures with GalNAc linked α or β to positions 3 or 4 of an unsubstituted Gal. The binding studies clearly distinguished the lectins into αGalNAc-specific agglutinins like DBA, GSA and SSA, and lectins which recognize α- as well as β-linked GalNAc residues like HPA, VVA, WFA and SBA. HPA was the only lectin which bound to the βGal1 → 3αGalNAc-Synsorb adsorbent (T antigen) indicating that it also recognizes internal GalNAc residues. Among the αGalNAc-specific lectins, DBA strongly recognized blood group A structures while GSA displayed weaker recognition, and SSA bound only slightly to this affinity **matrix** . In addition, DBA and SSA were able to distinguish between GalNAc linked α1 → 3 and GalNAc linked α1 → 4, to the support, the latter being a much weaker ligand. These results were corroborated by the binding of the lectins to biol. substrates as determined by their hemagglutination titers with native and enzyme-treated red blood cells carrying known GalNAc determinants, e.g. blood group A, and the Cad and Tn antigens. For SSA, the binding to the αGalNAc **matrix** was inhibited by a number of glycopeptides and glycoproteins confirming the strong preference of this lectin for αGalNAc-Ser/Thr-bearing glycoproteins.

L5 ANSWER 16 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1988:479719 CAPLUS
DOCUMENT NUMBER: 109:79719
TITLE: Functionalized pharmaceutical liposomes containing an amphiphilic compound, especially lipopolysaccharides, in the membrane matrix.
INVENTOR(S): Kida, Masaaki; Kitabata, Isako; Kubotsu, Kazuhisa; Sakata, Yoshitsugu
PATENT ASSIGNEE(S): Wako Pure Chemical Industries, Ltd., Japan
SOURCE: Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

EP 247497	A2	19871202	EP 1987-107259	19870519
EP 247497	A3	19880914		
EP 247497	B1	19920304		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 63096560	A2	19880427	JP 1986-242746	19861013
JP 07107535	B4	19951115		
US 4861597	A	19890829	US 1987-51349	19870519
AT 72973	E	19920315	AT 1987-107259	19870519
ES 2032776	T3	19930301	ES 1987-107259	19870519
JP 63107742	A2	19880512	JP 1987-123542	19870520
PRIORITY APPLN. INFO.:			JP 1986-115405 A	19860520
			JP 1986-242746 A	19861013
			EP 1987-107259 A	19870519

AB Functionalized liposomes containing a high-mol.-weight amphiphilic compound, e.g. **lipopolysaccharides** (LPS), as one of the **matrix** materials have a very high encapsulation efficiency and readily undergo lysis. Antigens, antibodies, etc., can be immobilized on the liposomes efficiently with a sufficient binding rate by using the amphiphilic compound as a **spacer**. Dipalmitoylphosphatidylcholine, dipalmitoylphosphatidylglycerol, cholesterol, and LPS were mixed in CHCl3-MeOH; the dried residue was treated with alkaline phosphatase (AP) in CHCl3-Et2O and HEPES buffer, and the mixture was vortexed, the organic solvent was removed, the material was centrifuged to remove free AP and the residue was suspended in NaHCO3 buffer. The above liposome suspension was treated with NaIO4, centrifuged, and IgG was added to give IgG-attached AP-containing liposomes. The liposomes contained 127 μg attached IgG of the 300 μg used in preparation, and retained 70% of AP activity; in contrast, liposomes containing ganglioside rather than LPS retained 69/300 μg, and 45% AP activity.

L5 ANSWER 17 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1986:494131 CAPLUS
DOCUMENT NUMBER: 105:94131
TITLE: Amphipathic gel-product for chromatographic and batchwise adsorption
INVENTOR(S): Porath, Jerker; Belew, Makonnen
PATENT ASSIGNEE(S): Exploaterings AB T.B.F., Swed.
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 180563	A2	19860507	EP 1985-850321	19851011
EP 180563	A3	19870204		
R: DE, FR, GB				
SE 8405431	A	19860501	SE 1984-5431	19841030
SE 452557	B	19871207		
SE 452557	C	19880317		
JP 61165661	A2	19860726	JP 1985-243799	19851030
PRIORITY APPLN. INFO.:			SE 1984-5431 A	19841030

AB The title product comprising a hydrophobic group coupled to a hydrophilic gel through a thio-ether bridge provides better chromatog. separation and batchwise adsorption than products in which hydrophobic group is bound to the hydrophilic gel through an O bridge. The gel may be a crosslinked **polysaccharide**, a polyacrylic acid derivative or an inorg. substance, such as silica gel, glass, or their derivs. The hydrophobic group may comprise alkyl, alkenyl, cycloalkenyl, alkaryl, aralkyl, heteroaryl, alkheteroalkyl with substituted or unsubstituted elec. neutral groups in

addition to the thio-ether group. The hydrophobic group may be separated from **matrix** by a **spacer** having ≥1 methylene groups.
The gel-product is prepared by introducing an oxirane or thiosulfate group into a hydrophilic gel and subsequently contacting the gel with a hydrophobic mercaptan in an alkaline solution For example, agarose gel was mixed with NaBH4, butane dioldiglycidyl ether and NaOH solution The resulting oxirane gel was contacted with octylmercaptan in the presence of NaBH4 and NaOH. The resulting octyl-S-agarose adsorbed human serum albumin as well as conventionally used octyl-O-agarose. However, the octyl-S-agarose provided a pure serum albumin when eluting with a Tris buffer containing ethylene glycol.

L5 ANSWER 18 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1984:135431 CAPLUS
DOCUMENT NUMBER: 100:135431
TITLE: Affinity gel-adsorbent
INVENTOR(S): Grandics, Peter
PATENT ASSIGNEE(S): USA
SOURCE: U.S., 5 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4423208	A	19831227	US 1982-352013	19820224
PRIORITY APPLN. INFO.:			US 1982-352013	19820224

AB An improved adsorbent is described for the affinity chromatog. purification of glucocorticoid receptor from rat liver cytosol. The adsorbent is prepared by coupling at pH 7-9 a steroid ligand with an amino gel (prepared by coupling a **spacer** arm to a **polysaccharide matrix**). The steroid ligand is prepared by treating a C-21 corticosteroid sequentially with methanesulfonyl chloride and methyl-p-hydroxybenzoate Na salt. The ligand is then mixed with N-hydroxysuccinimide, N,N'-dicyclohexylcarbodiimide, and the prepared amino gel. The adsorbent is washed with dioxane-H2O (1:1) and 1M NaCl, acetylated with Ac2O, and washed with dioxane and MeOH. The gel can be regenerated after use by using a reagent containing 1M NaCl, distilled water, and an organic solvent mixture containing Triton X 100. The unactivated receptor was purified 100-200-fold compared to crude liver cytosol, and 1000-fold after subsequent gel filtration.

L5 ANSWER 19 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1984:99473 CAPLUS
DOCUMENT NUMBER: 100:99473
TITLE: **Polysaccharide matrices** comprising macromolecular **spacer** arms for use as adsorbents in affinity chromatography techniques
INVENTOR(S): Cuatrecasas, Pedro; Parikh, Indu
PATENT ASSIGNEE(S): USA
SOURCE: U.S., 7 pp. Cont. of U.S. Ser. No. 97,889 abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 4411832	A	19831025	US 1981-286763	19810727
PRIORITY APPLN. INFO.:			US 1974-475314 A1	19740531
			US 1976-713108 A1	19760810
			US 1978-876126 A1	19780208
			US 1979-6175 A1	19790124
			US 1979-97889 A1	19791126

AB Improved **polysaccharide matrices** are described as adsorbents for the affinity chromatog. of biol. mols. which have polyfunctional water-soluble macromol. **spacers**, e.g. polylysine, poly(lysylalanine), native or denatured albumin, covalently bonded to the backbone of the **polysaccharide matrix** (cellulose, starch, crosslinked dextran, albumin) so that the functional groups of the **spacers** are sterically unhindered. The ligand (protein, hormone, nucleoside, nucleotide) is separated from the **matrix** by a distance of approx. 150 A°. Thus, the branched-chain copolymer of L-lysine (backbone) and DL-alanine (side chain) was coupled to agarose by a known CNBr activation method for the preparation of poly(lysylalanine)-agarose.

L5 ANSWER 20 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:488257 CAPLUS
DOCUMENT NUMBER: 97:88257
TITLE: Activated matrix and method of activation
INVENTOR(S): Ayers, John S.; Bethell, Geoffrey S.; Hancock, William S.; Hearn, Milton T. W.
PATENT ASSIGNEE(S): Development Finance Corp. of New Zealand, N. Z.
SOURCE: U.S., 12 pp. Cont.-in-part of U.S. 4,224,439.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4330440	A	19820518	US 1980-128847	19800310
US 4224439	A	19800923	US 1978-874628	19780202
PRIORITY APPLN. INFO.:			US 1978-874628 A2	19780202
			NZ 1977-183283 A	19770208

AB Crosslinked **polysaccharides** (e.g. agarose, dextran, cellulose), their copolymers with synthetic polymers (e.g. acrylamides), acrylates, and methacrylates), or rigid supports (e.g. silica beads, coated with hydroxyalkyl groups) are activated by carbonylation with N,N'-carbonyldiimidazole(CDI), N,N'-carbonyldi-1,2,4-triazole, and N,N'-carbonyldi-1,2,3-benzotriazole and then coupled to various ligands for use as stationary phases for chromatog. or immobilization of biol. compds. The greatest advantage of using the carbonylating agents instead of CNBr for activation is that no charged groups are introduced into the **matrix** during the coupling steps. In 1 example, Sepharose CL 6B was activated with CDI, coupled to soybean trypsin inhibitor (with or without the **spacer** compound 6-aminohexanoic acid), and used for the affinity chromatog. of trypsin. Results of the activation of other common **matrixes** by carbonylation are described.

L5 ANSWER 21 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:528361 CAPLUS
DOCUMENT NUMBER: 95:128361
TITLE: Polymers containing quinone groups as carriers for immobilization of enzymes
AUTHOR(S): Manecke, Georg; Beier, Wilfried
CORPORATE SOURCE: Fritz-Haber-Inst. Max-Planck-Ges., Berlin, 1000/33, Fed. Rep. Ger.
SOURCE: Angewandte Makromolekulare Chemie (1981), 97(1), 23-33

CODEN: ANMCBO; ISSN: 0003-3146
DOCUMENT TYPE: Journal
LANGUAGE: German

AB Crosslinked poly(4-styrenesulfonyl chloride) was reacted with 3-amino-4-hydroxyphenylbenzoate, and then the product was saponified and oxidized to give a reactive carrier containing p-benzoquinone. Three such carriers with varying degrees of crosslinking were prepared The binding ability of these carriers with α-chymotrypsin (I) as well as I activity was tested with these carriers. I binding and activity was increased by the introduction of either ethylenediamine or hexamethylenediamine as **spacers** between the polystyrene **matrix** and the p-benzoquinone. Also, crosslinked poly(vinyl alc.) was reacted with p-benzoquinone to give a reactive carrier on which I was immobilized. The latter carrier had the best binding ability and allowed the largest amount of I activity than the other carriers. However, relatively low amts. of I were bound and relatively low immobilized I activities were found for all of the carriers tested. This is probably due to the low swelling capacity of these carriers compared to **polysaccharides**. The poly(vinyl alc.)-containing carrier had a good stability on storage for 4 mo, whereas the other carriers were not as stable on storage. The pH optimum of I on the **spacer**-containing polystyrene carriers and the poly(vinyl alc.) carrier was shifted to pH 9 from the normal 8.5.

L5 ANSWER 22 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:493183 CAPLUS
DOCUMENT NUMBER: 95:93183
TITLE: Affinity adsorbents with polysaccharide spacers. Preparation and properties
AUTHOR(S): Klyashchitskii, B. A.; Mitina, V. Kh.
CORPORATE SOURCE: Inst. Biol. Med. Chem., Moscow, 119121, USSR
SOURCE: Journal of Chromatography (1981), 210(1), 55-65
CODEN: JOCRAM; ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Soluble branched and neutral **polysaccharides** may be used as polymeric hydrophilic and inert **spacers** in affinity adsorbents. A series of methods for preparation of such adsorbents were developed. These methods involve introduction of a definite number of reactive groups into a **polysaccharide** mol. with subsequent coupling of the modified **polysaccharide** to a solid **matrix**, activation of the **polysaccharide spacer** and, finally, covalent binding of ligands of various chemical nature. The conditions are specified for the preparation of biospecific adsorbents containing Hb, RNase, poly(U), uridine, hexamethylenediamine and L-lysine as ligands and dextran, glycogen and amylopectin derivs. as **spacers**. The adsorbents having **polysaccharide spacers** were characterized by higher ligand concns. and stability than analogous adsorbents without such **spacers**. The title adsorbents may be used for enzyme purification

L5 ANSWER 23 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1981:437599 CAPLUS
DOCUMENT NUMBER: 95:37599
TITLE: Stepwise immobilization of proteins via their glycosylation
AUTHOR(S): Gemeiner, Peter; Viskupic, Emil
CORPORATE SOURCE: Inst. Chem., Slovak Acad. Sci., Bratislava, 809 33, Czech.
SOURCE: Journal of Biochemical and Biophysical Methods (1981), 4(5-6), 309-19
CODEN: JBBMDG; ISSN: 0165-022X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Glycosyl derivs. of bovine serum albumin in which the glycosyl residue is represented by mono- or **disaccharide** can be, after periodate oxidation, coupled to polyhydrazides having a macroporous **matrix** (cross-linked polyacrylamide, bead cellulose). The amount of the linked neoglycoprotein depends not only on the phys. structure of the **matrix** but also on the degree of its substitution with hydrazide groups and on the type and concentration of glycosyl residue in the neoglycoprotein. A high degree of substitution as well as the presence of the D-galactosyl unit both play a pos. role. Since the glucosyl unit in **disaccharide** residues (cellobiosyl, lactosyl) also contributes pos. to **spacer** properties, the monolactosyl derivative of albumin exhibits good binding properties towards macroporous polyhydrazides. Whereas the high sugar-containing conjugates of glycosyl derivs. of albumin with polyhydrazides are stable for 2 wk at pH 6-9, the conjugates of the monolactosyl derivative of albumin can only be stored at pH 7.5. The binding site of albumin immobilization is considered.

L5 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1980:617229 CAPLUS
DOCUMENT NUMBER: 93:217229
TITLE: Comparison of characteristics of immobilized enzymes prepared by graft-copolymerization and support activation
AUTHOR(S): D'Angiuro, L.; Mazzola, G.; Vecchio, G.; Focher, B.; Cremonesi, P.
CORPORATE SOURCE: Stn. Sper. Cellul., Milan, 26, Italy
SOURCE: Journal of Applied Biochemistry (1980), 2(3), 208-17
CODEN: JABIDV; ISSN: 0161-7354
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A comparison of the properties of immobilized enzyme systems obtained by graft copolymn. of vinylenzymes onto a **polysaccharide** support (Sepharose) and those obtained by support activation using CNBr or cyanuric chloride is reported. Immobilization of horseradish peroxidase by graft-copolymn. gives rise to products in which, because the enzyme can be located favorably within the solid **matrix**, the kinetic properties (K'm = 0.70 + 10-4M) are similar to those of the free enzyme (Km = 0.57 + 10-4M) and are independent of the monomer used to derivatize the enzyme. Depending on the crosslinking tendency of the bifunctional monomer, enzyme immobilization occurs by 2 simultaneous mechanisms; graft-copolymn. and entrapment. In polyglycidylmethacrylate copolymers, immobilization by graft-copolymn. is the prevalent mechanism, whereas for the other copolymers entrapment reaches .apprx.50%. In contrast, the kinetic behavior of the immobilized enzyme synthesized by support activation is different (K'm = 1.55 + 10-4M) from that of the native enzyme and phenomena indicative of diffusion limitations were observed The differences in kinetics were ascribed to the synthetic polymer **spacer** arm between support and enzyme present in the immobilized systems prepared by graft-copolymn. Operational stability and thermal stability were independent of the immobilization method used.

L5 ANSWER 25 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1979:50791 CAPLUS
DOCUMENT NUMBER: 90:50791
TITLE: Synthesis of imidazole containing matrixes (polyhydroxyethylmethacrylates, polysaccharides) and its application in affinity chromatography
AUTHOR(S): Mohr, P.; Pommerening, K.; Kuehn, M.; Stamberg, J.; Benes, M.
CORPORATE SOURCE: Cent. Inst. Mol. Biol., Ger. Acad. Sci., Berlin, Ger. Dem. Rep.
SOURCE: Affinity Chromatogr., Proc. Int. Symp. (1978), Meeting Date 1977, 129-32. Editor(s): Hoffmann-Ostenhof, O.;

Breitenbach, M.; Koller, F. Pergamon: Oxford, Engl.
CODEN: 39QEAS
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Methods for the covalent binding of imidazole to poly(hydroxyethylmethacrylates) and **polysaccharides** are described. These **matrixes** are suitable for affinity chromatog. of hemoproteins (Hb/myoglobin, cytochrome P-450/cytochrome P-420, etc.). The separation effectivity depends on the **spacer** length of the **matrix**, pH, and temperature Ligand specific contacts (coordination binding between hemin Fe and imidazole) are essential in case of a short **spacer**. Long **spacers** are responsible for nonspecific interactions. Separation of Hb/myoglobin also is possible by means of **matrixes** containing ω-aminoalkyl groups.

L5 ANSWER 26 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1977:449582 CAPLUS
DOCUMENT NUMBER: 87:49582
TITLE: A spin labeling study of a polysaccharide support matrix for affinity chromatography
AUTHOR(S): Aplin, John D.; Hall, Laurance D.
CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, Can.
SOURCE: Journal of the American Chemical Society (1977), 99(12), 4162-3
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The use of 2 nitroxide spin label probes to investigate the structure of agarose and its use as a **matrix** for affinity chromatog. are described. Evidence for the existence of tertiary structure and for cross-linking of **polysaccharide** strands during chemical activation is presented. The effect of a **spacer** arm on the rotation freedom of the ligand is discussed.

L5 ANSWER 27 OF 33 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1975:439254 CAPLUS
DOCUMENT NUMBER: 83:39254
TITLE: Bovine trypsin and thrombin
AUTHOR(S): Hixson, H. F., Jr.; Nishikawa, A. H.
CORPORATE SOURCE: Abbott Diagn. Div., Abbott Lab. Inc., Chicago, IL, USA
SOURCE: Methods in Enzymology (1974), 34(Affinity Tech.: Enzyme Purif., Part B), 440-8
CODEN: MENZAU; ISSN: 0076-6879
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The purification of trypsin and thrombin by affinity chromatog. on **polysaccharide** gels containing synthetic inhibitors of the enzymes is reported. Trypsin was purified on agarose or polyacrylamide bead **matrices** containing 6-aminohexanoate and monosuccinylated 1,6-diaminohexane **spacers** and the ligand inhibitors, m- and p-aminobenzamidines. The enzyme was eluted by standard buffer containing 10 mM benzamidine-HCl. Thrombin was purified on 1 of 2 **matrix-spacer** columns containing m- and p-aminobenzamide inhibitors. The **matrix-spacer** columns used were 4% agarose containing 6-aminohexanoic acid and 6% agarose containing succinylated 1,6-diaminohexane. Thrombin was eluted from the affinity column by 50 mM benzamidine in standard buffer.

L5 ANSWER 28 OF 33 MEDLINE on STN
ACCESSION NUMBER: 2003305683 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12700241
TITLE: Phosphacan short isoform, a novel non-proteoglycan variant

of phosphacan/receptor protein tyrosine phosphatase-beta, interacts with neuronal receptors and promotes neurite outgrowth.

AUTHOR: Garwood Jeremy; Heck Nicolas; Reichardt Frank; Faissner Andreas

CORPORATE SOURCE: Laboratoire de Neurobiologie du Developpement et de la Regeneration, CNRS Centre de Neurochimie, 67084 Strasbourg, France.. garwood@neurochem.u-strasbg.fr

SOURCE: Journal of biological chemistry, (2003 Jun 27) 278 (26) 24164-73. Electronic Publication: 2003-04-16. Journal code: 2985121R. ISSN: 0021-9258.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

OTHER SOURCE: GENBANK-AJ428208

ENTRY MONTH: 200308

ENTRY DATE: Entered STN: 20030702
Last Updated on STN: 20030821
Entered Medline: 20030820

AB Phosphacan, one of the principal proteoglycans in the extracellular **matrix** of the central nervous system, is implicated in neuron-glia interactions associated with neuronal differentiation and myelination. We report here the identification of a novel truncated form of phosphacan, phosphacan short isoform (PSI), that corresponds to the N-terminal carbonic anhydrase- and fibronectin type III-like domains and half of the **spacer** region. The novel cDNA transcript was isolated by screening of a neonatal brain cDNA expression library using a polyclonal antibody raised against phosphacan. Expression of this transcript in vivo was confirmed by Northern blot hybridization. Analysis of brain protein extracts reveals the presence of a 90-kDa glycosylated protein in the phosphate-buffered saline-insoluble 100000 x g fraction that reacts with antisera against both phosphacan and a recombinant PSI protein and that has the predicted N-terminal sequence. This protein is post-translationally modified with **oligosaccharides**, including the HNK-1 epitope, but, unlike phosphacan, it is not a proteoglycan. The expression of the PSI protein varies during central nervous system development in a fashion similar to that observed for phosphacan, being first detected around embryonic day 16 and then showing a dramatic increase in expression to plateau around the second week post-natal. Both the native and recombinant PSI protein can interact with the Ig cell adhesion molecules, F3/contactin and L1, and in neurite outgrowth assays, the PSI protein can promote outgrowth of cortical neurons when used as a coated substrate. Hence, the identification of this novel isoform of phosphacan/receptor protein tyrosine phosphatase-beta provides a new component in cell-cell and cell-extracellular **matrix** signaling events in which these proteins have been implicated.

L5 ANSWER 29 OF 33 MEDLINE on STN

ACCESSION NUMBER: 2000477576 MEDLINE

DOCUMENT NUMBER: PubMed ID: 11028946

TITLE: Lectin-mediated drug targeting: selection of valency, sugar type (Gal/Lac), and spacer length for cluster glycosides as parameters to distinguish ligand binding to C-type asialoglycoprotein receptors and galectins.

AUTHOR: Andre S; Frisch B; Kaltner H; Desouza D L; Schuber F; Gabius H J

CORPORATE SOURCE: Institut fur Physiologische Chemie, Tierarztliche Fakultat, Ludwig-Maximilians-Universitat, Germany.

SOURCE: Pharmaceutical research, (2000 Aug) 17 (8) 985-90. Journal code: 8406521. ISSN: 0724-8741.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200102
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010215

AB PURPOSE: Common **oligosaccharides** of cellular glycoconjugates are ligands for more than one type of endogenous lectin. Overlapping specificities to beta-galactosides of C-type lectins and galectins can reduce target selectivity of carbohydrate-ligand-dependent drug targeting. The purpose of this study is to explore distinct features of ligand presentation and structure for design of cluster glycosides to distinguish between asialoglycoprotein-specific (C-type) lectins and galectins. METHODS: Extent of binding of labeled sugar receptors to two types of **matrix**-immobilized (neo)glycoproteins and to cells was evaluated in the absence and presence of competitive inhibitors. This panel comprised synthetic mono-, bi-, and trivalent glycosides with two **spacer** lengths and galactose or lactose as ligand part. RESULTS: In contrast to C-type lectins of hepatocytes and macrophages, bi- and trivalent glycosides do not yield a notable glycoside cluster effect for galectins-1 and -3. Also, these Ca2+-independent galactoside-binding proteins prefer to home in on lactose-bearing glycosides relative to galactose as ligand, while **spacer** length requirements were rather similar. CONCLUSIONS: Trivalent cluster glycosides with Gal/GalNAc as ligand markedly distinguish between C-type lectins and galectins. Undesired side reactivities to galectins for C-type lectin drug delivery will thus be minimal.

L5 ANSWER 30 OF 33 MEDLINE on STN
ACCESSION NUMBER: 1998256323 MEDLINE
DOCUMENT NUMBER: PubMed ID: 9593739
TITLE: ADAMTS-1 protein anchors at the extracellular matrix through the thrombospondin type I motifs and its spacing region.
AUTHOR: Kuno K; Matsushima K
CORPORATE SOURCE: Department of Pharmacology, Cancer Research Institute, Kanazawa University, 13-1 Takara-machi, Kanazawa, Ishikawa 920, Japan.. koujim@m.u-tokyo.ac.jp
SOURCE: Journal of biological chemistry, (1998 May 29) 273 (22) 13912-7.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199807
ENTRY DATE: Entered STN: 19980713
Last Updated on STN: 20020420
Entered Medline: 19980701

AB Cellular disintegrin and metalloproteinases (ADAMs) are a family of genes with a sequence similar to those of snake venom metalloproteinases and disintegrins. The ADAMTS-1 gene encodes a new type of ADAM protein with respect to possessing the thrombospondin (TSP) type I motifs. Expression of the gene is induced in kidney and heart by in vivo administration of **lipopolysaccharide**, suggesting a possible role in the inflammatory reaction. In this study, we characterized the ADAMTS-1 gene product by using a transient expression system in COS-7 cells. We found that the precursor and processed forms of ADAMTS-1 were secreted from cells. Under normal growth conditions, little or none of both forms was detected in the cell culture medium, and instead the majority was found associated with the extracellular **matrix** (ECM). In addition, when cells were cultured in the presence of heparin, the mature form of ADAMTS-1 protein was detected in the cell culture medium, suggesting that binding of

ADAMTS-1 to the ECM is mediated through sulfated glycosaminoglycans such as heparan sulfate. Analyses of deletion mutants of the ADAMTS-1 protein revealed that the **spacer** region as well as three TSP type I motifs in the carboxyl-terminal region of the ADAMTS-1 protein are important for a tight interaction with the ECM. These results suggest that the ADAMTS-1 is a unique ADAM family protein that anchors at the ECM.

L5 ANSWER 31 OF 33 MEDLINE on STN
ACCESSION NUMBER: 93183458 MEDLINE
DOCUMENT NUMBER: PubMed ID: 1292521
TITLE: Covalent binding of urease on ammonium-selective potentiometric membranes.
AUTHOR: Gil M H; Piedade A P; Alegret S; Alonso J; Martinez-Fabregas E; Orellana A
CORPORATE SOURCE: Department of Chemistry, University of Coimbra, Portugal.
SOURCE: Biosensors & bioelectronics, (1992) 7 (9) 645-52.
Journal code: 9001289. ISSN: 0956-5663.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199304
ENTRY DATE: Entered STN: 19930416
Last Updated on STN: 19990129
Entered Medline: 19930408

AB As part of the development of disposable urea bioselective probes, the covalent binding of urease on ammonium-selective potentiometric membranes has been assessed. Nonactin/bis(1-butylpentyl)adipate/poly(vinylchloride) (PVC) membranes, directly applied to an internal solid contact (conductive epoxy-graphite composite), has been used as a support for covalent immobilization of urease. Two types of all-solid-state construction process have been assayed: thin layers of cellulose acetate (CA) were coated on the PVC ammonium-selective membranes (type 1) and blends of PVC and CA at various ratios were used as ammonium-selective membrane **matrices** (type 2). Urease was covalently attached to CA via aldehyde groups. These groups were created on the **polysaccharide** with sodium periodate to which the enzyme was immobilized through a **spacer** (hexamethylenediamine). The viability of both types of probe for the determination of ammonium ions was assessed after each step of the activation process. Results indicated that type 2 potentiometric probes are altered after the treatment with sodium periodate. Good results were obtained with type 1 probes. Their dynamic concentration range of response to urea was from 2 x 10(-5) to 0.01 M with a sensibility of 50 mV/decade.

L5 ANSWER 32 OF 33 MEDLINE on STN
ACCESSION NUMBER: 90345955 MEDLINE
DOCUMENT NUMBER: PubMed ID: 2384093
TITLE: Comparison of the carbohydrate-binding specificities of seven N-acetyl-D-galactosamine-recognizing lectins.
AUTHOR: Piller V; Piller F; Cartron J P
CORPORATE SOURCE: Institut National de la Sante et de la Recherche Medicale Unite 76, Institut National de Transfusion Sanguine, Paris, France.
SOURCE: European journal of biochemistry / FEBS, (1990 Jul 31) 191 (2) 461-6.
Journal code: 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199009
ENTRY DATE: Entered STN: 19901026

Last Updated on STN: 19901026
Entered Medline: 19900914

AB Seven plant lectins, Dolichos biflorus agglutinin (DBA), Griffonia simplicifolia agglutinin (GSA, isolectin A4), Helix pomatia agglutinin (HPA), soybean (Glycine max) agglutinin (SBA), Salvia sclarea agglutinin (SSA), Vicia villosa agglutinin (VVA, isolectin B4) and Wistaria floribunda agglutinin (WFA), known to be specific for N-acetyl-D-galactosamine-(GalNAc) bearing glycoconjugates, have been compared by the binding of their radiolabelled derivatives, to eight well-characterized synthetic **oligosaccharides** immobilized via a **spacer** on an inert silica **matrix** (Synsorb). The eight **oligosaccharides** included the Forssman, the blood group A and the T antigens, as well as alpha GalNAc coupled directly to the support (Tn antigen) and also structures with GalNAc linked alpha or beta to positions 3 or 4 of an unsubstituted Gal. The binding studies clearly distinguished the lectins into alpha GalNAc-specific agglutinins like DBA, GSA and SSA, and lectins which recognize alpha- as well as beta-linked GalNAc residues like HPA, VVA, WFA and SBA. HPA was the only lectin which bound to the beta Gal1----3 alpha GalNAc-Synsorb adsorbent (T antigen) indicating that it also recognizes internal GalNAc residues. Among the alpha GalNAc-specific lectins, DBA strongly recognized blood group A structures while GSA displayed weaker recognition, and SSA bound only slightly to this affinity **matrix**. In addition, DBA and SSA were able to distinguish between GalNAc linked alpha 1----3 and GalNAc linked alpha 1----4, to the support, the latter being a much weaker ligand. These results were corroborated by the binding of the lectins to biological substrates as determined by their hemagglutination titers with native and enzyme-treated red blood cells carrying known GalNAc determinants, e.g. blood group A, and the Cad and Tn antigens. For SSA, the binding to the alpha GalNAc **matrix** was inhibited by a number of glycopeptides and glycoproteins confirming the strong preference of this lectin for alpha GalNAc-Ser/Thr-bearing glycoproteins.

L5 ANSWER 33 OF 33 MEDLINE on STN
ACCESSION NUMBER: 81240551 MEDLINE
DOCUMENT NUMBER: PubMed ID: 7252044
TITLE: Stepwise immobilization of proteins via their glycosylation.
AUTHOR: Gemeiner P; Viskupic E
SOURCE: Journal of biochemical and biophysical methods, (1981 Jun) 4 (5-6) 309-19.
Journal code: 7907378. ISSN: 0165-022X.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198109
ENTRY DATE: Entered STN: 19900316
Last Updated on STN: 19900316
Entered Medline: 19810925

AB Glycosyl derivatives of bovine serum albumin in which the glycosyl residue is represented by mono- or **disaccharide** can be, after periodate oxidation, coupled to polyhydrazides having a macroporous **matrix** (cross-linked polyacrylamide, bead cellulose). The amount of the linked neoglycoprotein depends not only on the physical structure of the **matrix** but also on the degree of its substitution with hydrazide groups and on the type and concentration of glycosyl residue in the neoglycoprotein. A high degree of substitution as well as the presence of the D-galactosyl unit both play a positive role. Owing to the fact that the glucosyl unit in **disaccharide** residues (cellobiosyl, lactosyl) also contributes positively to **spacer** properties, in the monolactosyl derivative of albumin exhibits good binding properties towards macroporous polyhydrazides. While the high sugar-containing

conjugates of glycosyl derivatives of albumin with polyhydrazides are stable for two weeks at pH 6-9, the conjugates of the monolactosyl derivative of albumin can only be stored at pH 7.5. The binding site of albumin immobilization is considered.

L6 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1986:494131 CAPLUS
DOCUMENT NUMBER: 105:94131
TITLE: Amphipathic gel-product for chromatographic and batchwise adsorption
INVENTOR(S): Porath, Jerker; Belew, Makonnen
PATENT ASSIGNEE(S): Exploaterings AB T.B.F., Swed.
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 180563	A2	19860507	EP 1985-850321	19851011
EP 180563	A3	19870204		
R: DE, FR, GB				
SE 8405431	A	19860501	SE 1984-5431	19841030
SE 452557	B	19871207		
SE 452557	C	19880317		
JP 61165661	A2	19860726	JP 1985-243799	19851030

PRIORITY APPLN. INFO.: SE 1984-5431 A 19841030

AB The title product comprising a hydrophobic group coupled to a hydrophilic gel through a thio-ether bridge provides better chromatog. separation and batchwise adsorption than products in which hydrophobic group is bound to the hydrophilic gel through an O bridge. The gel may be a crosslinked **polysaccharide**, a polyacrylic acid derivative or an inorg. substance, such as silica gel, glass, or their derivs. The hydrophobic group may comprise alkyl, alkenyl, cycloalkenyl, alkaryl, aralkyl, heteroaryl, alkheteroalkyl with substituted or unsubstituted elec. neutral groups in addition to the thio-ether group. The hydrophobic group may be separated from **matrix** by a **spacer** having ≥1 methylene groups.
The gel-product is prepared by introducing an oxirane or thiosulfate group into a hydrophilic gel and subsequently contacting the gel with a hydrophobic mercaptan in an alkaline solution For example, **agarose** gel was mixed with NaBH4, butane dioldiglycidyl ether and NaOH solution The resulting oxirane gel was contacted with octylmercaptan in the presence of NaBH4 and NaOH. The resulting octyl-S-**agarose** adsorbed human serum albumin as well as conventionally used octyl-O-**agarose**. However, the octyl-S-**agarose** provided a pure serum albumin when eluting with a Tris buffer containing ethylene glycol.

L6 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1984:99473 CAPLUS
DOCUMENT NUMBER: 100:99473
TITLE: **Polysaccharide matrices** comprising macromolecular **spacer** arms for use as adsorbents in affinity chromatography techniques
INVENTOR(S): Cuatrecasas, Pedro; Parikh, Indu
PATENT ASSIGNEE(S): USA
SOURCE: U.S., 7 pp. Cont. of U.S. Ser. No. 97,889 abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4411832	A	19831025	US 1981-286763	19810727

PRIORITY APPLN. INFO.: US 1974-475314 A1 19740531
US 1976-713108 A1 19760810
US 1978-876126 A1 19780208
US 1979-6175 A1 19790124
US 1979-97889 A1 19791126

AB Improved **polysaccharide matrices** are described as adsorbents for the affinity chromatog. of biol. mols. which have polyfunctional water-soluble macromol. **spacers**, e.g. polylysine, poly(lysylalanine), native or denatured albumin, covalently bonded to the backbone of the **polysaccharide matrix** (cellulose, starch, crosslinked dextran, albumin) so that the functional groups of the **spacers** are sterically unhindered. The ligand (protein, hormone, nucleoside, nucleotide) is separated from the **matrix** by a distance of approx. 150 A°. Thus, the branched-chain copolymer of L-lysine (backbone) and DL-alanine (side chain) was coupled to **agarose** by a known CNBr activation method for the preparation of poly(lysylalanine)-**agarose**.

L6 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:488257 CAPLUS
DOCUMENT NUMBER: 97:88257
TITLE: Activated matrix and method of activation
INVENTOR(S): Ayers, John S.; Bethell, Geoffrey S.; Hancock, William S.; Hearn, Milton T. W.
PATENT ASSIGNEE(S): Development Finance Corp. of New Zealand, N. Z.
SOURCE: U.S., 12 pp. Cont.-in-part of U.S. 4,224,439.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4330440	A	19820518	US 1980-128847	19800310
US 4224439	A	19800923	US 1978-874628	19780202

PRIORITY APPLN. INFO.: US 1978-874628 A2 19780202
NZ 1977-183283 A 19770208

AB Crosslinked **polysaccharides** (e.g. **agarose**, dextran, cellulose), their copolymers with synthetic polymers (e.g. acrylamides), acrylates, and methacrylates), or rigid supports (e.g. silica beads, coated with hydroxyalkyl groups) are activated by carbonylation with N,N'-carbonyldiimidazole(CDI), N,N'-carbonyldi-1,2,4-triazole, and N,N'-carbonyldi-1,2,3-benzotriazole and then coupled to various ligands for use as stationary phases for chromatog. or immobilization of biol. compds. The greatest advantage of using the carbonylating agents instead of CNBr for activation is that no charged groups are introduced into the **matrix** during the coupling steps. In 1 example, Sepharose CL 6B was activated with CDI, coupled to soybean trypsin inhibitor (with or without the **spacer** compound 6-aminohexanoic acid), and used for the affinity chromatog. of trypsin. Results of the activation of other common **matrixes** by carbonylation are described.

L6 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1977:449582 CAPLUS
DOCUMENT NUMBER: 87:49582
TITLE: A spin labeling study of a polysaccharide support matrix for affinity chromatography
AUTHOR(S): Aplin, John D.; Hall, Laurance D.
CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, Can.
SOURCE: Journal of the American Chemical Society (1977), 99(12), 4162-3

CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The use of 2 nitroxide spin label probes to investigate the structure of **agarose** and its use as a **matrix** for affinity chromatog. are described. Evidence for the existence of tertiary structure and for cross-linking of **polysaccharide** strands during chemical activation is presented. The effect of a **spacer** arm on the rotation freedom of the ligand is discussed.

L6 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1975:439254 CAPLUS
DOCUMENT NUMBER: 83:39254
TITLE: Bovine trypsin and thrombin
AUTHOR(S): Hixson, H. F., Jr.; Nishikawa, A. H.
CORPORATE SOURCE: Abbott Diagn. Div., Abbott Lab. Inc., Chicago, IL, USA
SOURCE: Methods in Enzymology (1974), 34(Affinity Tech.: Enzyme Purif., Part B), 440-8
CODEN: MENZAU; ISSN: 0076-6879
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The purification of trypsin and thrombin by affinity chromatog. on **polysaccharide** gels containing synthetic inhibitors of the enzymes is reported. Trypsin was purified on **agarose** or polyacrylamide bead **matrices** containing 6-aminohexanoate and monosuccinylated 1,6-diaminohexane **spacers** and the ligand inhibitors, m- and p-aminobenzamidines. The enzyme was eluted by standard buffer containing 10 mM benzamidine-HCl. Thrombin was purified on 1 of 2 **matrix-spacer** columns containing m- and p-aminobenzamide inhibitors. The **matrix-spacer** columns used were 4% **agarose** containing 6-aminohexanoic acid and 6% **agarose** containing succinylated 1,6-diaminohexane. Thrombin was eluted from the affinity column by 50 mM benzamidine in standard buffer.

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=> d his

     (FILE 'HOME' ENTERED AT 12:17:57 ON 08 DEC 2005)

     FILE 'CAPLUS, MEDLINE' ENTERED AT 12:18:06 ON 08 DEC 2005
L1             8 S SACCHARIDE? (P) SPACER (P) MATRI?
L2             1 S SACCHARIDE? (P) SPACER? (P) FILTR?
L3             7 S SACCHARIDE? (P) SPACER? (P) BLOOD GROUP?
L4            41 S ?SACCHARIDE? (P) SPACER? (P) MATRI?
L5            33 S L4 NOT L1
L6             5 S L5 AND AGAROSE
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=> d his

     (FILE 'HOME' ENTERED AT 12:17:57 ON 08 DEC 2005)

     FILE 'CAPLUS, MEDLINE' ENTERED AT 12:18:06 ON 08 DEC 2005
L1             8 S SACCHARIDE? (P) SPACER (P) MATRI?
L2             1 S SACCHARIDE? (P) SPACER? (P) FILTR?
L3             7 S SACCHARIDE? (P) SPACER? (P) BLOOD GROUP?
L4            41 S ?SACCHARIDE? (P) SPACER? (P) MATRI?
L5            33 S L4 NOT L1
L6             5 S L5 AND AGAROSE
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